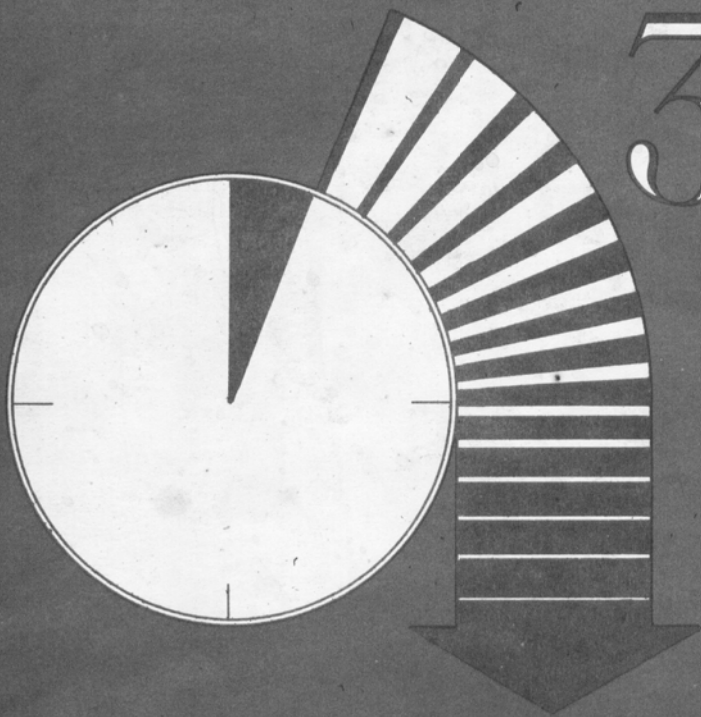
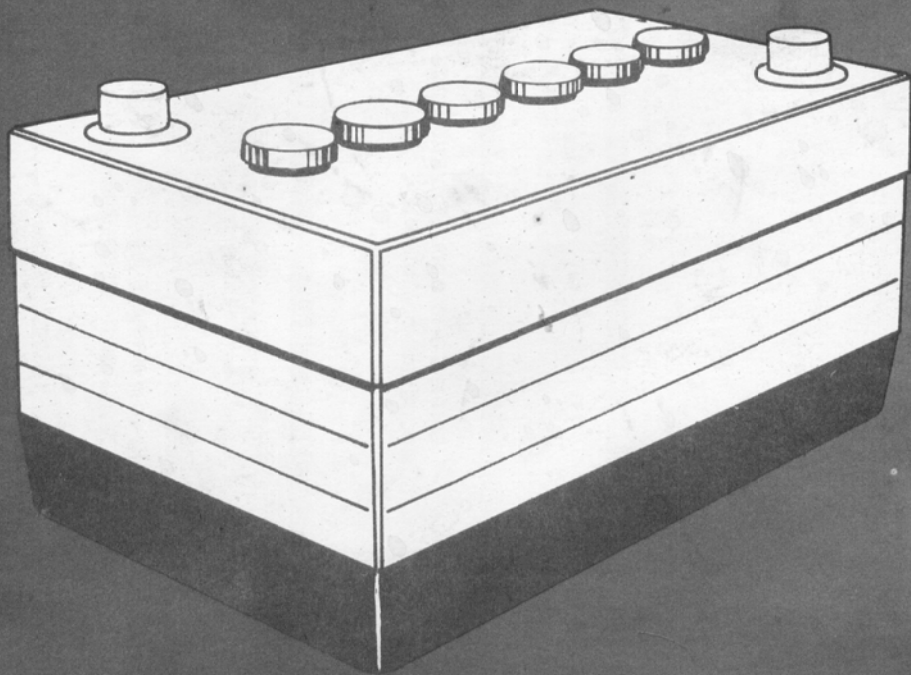


Sun's



3 MINUTE
BATTERY
TEST



SUN'S 3-MINUTE BATTERY TEST

DOES NOT APPLY TO MAINTENANCE-FREE BATTERIES

Quickly determines whether a 12 volt battery is
GOOD . . . CHARGEABLE . . . or NO GOOD

IMPORTANT

Wear safety glasses and observe safety precautions-see other side.

If battery temperature is not between 60° and 100° F, allow temperature to normalize before making these tests.

VISUAL INSPECTION

If battery is in good condition add distilled water as needed and continue test.

If the battery has loose posts, cracked case or top, the battery is NO GOOD

CAPACITY TEST

Connect a Sun Tester and load the battery as specified* by the manufacturer for 15 seconds. Note battery voltage while under load.

If the voltage remains above 10 volts, battery is GOOD

If the voltage drops below 9.6 volts, perform 3 Minute Charge Test

If the voltage is between 9.6 and 10 volts, perform Cell Test Under Load

CHARGE TEST

(Perform only if battery fails Capacity Test.)

Connect a voltmeter and a Sun fast battery charger. Set charge rate as close as possible to, but not over, 40 amps. Note voltage after 3 minutes.

Voltmeter reading stays below 15.5 volts, proceed to cell test Under Charge.

Voltmeter reading goes over 15.5 volts, battery is NO GOOD

CELL TEST UNDER LOAD

1. Connect cadmium cell probes (BCP) to voltmeter leads. Set voltmeter to low range.
2. Apply specified* load.

CELL TEST ON CHARGE

1. Connect cadmium cell probes (BCP) to voltmeter leads. Set voltmeter to low range.
2. With the voltmeter and fast charger connected and

- a. Read the cell voltage of cell #1.
- b. Remove the load.
3. Repeat step 2 for each cell.

Note: See other side for cell voltage test sequence.

If the cell voltages are even within 1/10 volt, battery is **GOOD**

If the cell voltages vary by more than 1/10 volt the battery is **NO GOOD**

charging at the same rate as above, read the cell voltage of cell #1.

3. Repeat step 2 for each cell.

Note: See other side for cell voltage test sequence.

If the cell voltages are even within 1/10 volt battery is **CHARGEABLE**

If the cell voltages vary by more than 1/10 volt the battery is **NO GOOD**

CHARGE THE BATTERY

Charge until fully charged. Refer to Charging Rate Table. After battery cools, perform CAPACITY TEST.

If voltage under load is 10 volts or more, battery is **GOOD**

If voltage under load is less than 10 volts, battery is **NO GOOD**

CHARGING RATE TABLE

Specific Gravity at 80°F	Charging Rate/Time
1.150 or less	40 amps/45 minutes
1.150 to 1.175	40 amps/30 minutes
1.175 to 1.200	40 amps/20 minutes
1.200 to 1.225	40 amps/10 minutes
above 1.225	slow charge

SPECIFIC GRAVITY TEST INDICATIONS

GOOD

A battery may be returned to service when the specific gravity of all cells is above 1.250 and the difference between cells is less than .050 for dry charged batteries, .030 for wet charged batteries.

NO GOOD

A battery is unsuitable for service if, after being charged, the specific gravity is below 1.250 or there is more than .050 difference between cells for dry charged batteries, .030 for wet charged batteries.

*For specified battery loads, see applicable Suntesters or Battery Manufacturer's Service Bulletins. Optional— Use ½ of Cold Cranking Current Rating at 0°F, or 3 times A.H. Rating.

CELL VOLTAGE TEST

Soft top batteries

Use cell prods to measure individual cell voltages.

Hard top batteries

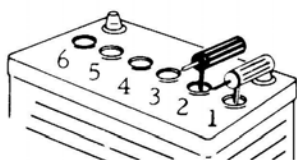
Use cell probes to measure individual cell voltages.

Follow illustrations for first 5 readings.

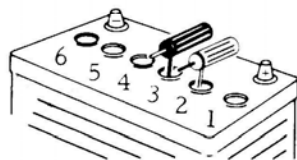
Follow illustrations for two steps necessary for 6th cell reading.

Add or subtract these readings for last reading.

PROCEDURE FOR 1ST 5 READINGS



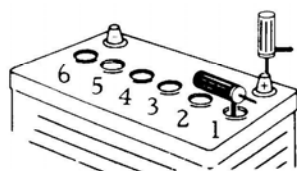
1st cell reading



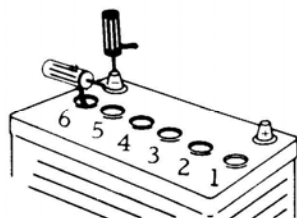
2nd cell reading

Repeat for
remaining 3 cells

PROCEDURE FOR 6TH CELL READING



1st step



2nd step

SAFETY PRECAUTIONS

FOR HANDLING AND TESTING BATTERIES

When working with batteries, use extreme care to avoid spilling or splashing electrolyte. The electrolyte can destroy clothing and cause body burns. Use a solution of baking soda and water to neutralize spilled electrolyte.

Always wear safety glasses. Electrolyte splashed into the eyes is very hazardous. If electrolyte is accidentally splashed into the eyes, immediately and thoroughly rinse them with water and consult a physician.

EXPLODING BATTERIES

Batteries can explode, sometimes with considerable force, if safety precautions are not observed.

CHARGING BATTERIES

A battery, by itself, will not explode unless a spark or flame has ignited the hydrogen gas.

Reason: Batteries on charge generate a highly explosive mixture of hydrogen and oxygen gas.

Keep sparks and flames away from batteries while on charge.

Keep charging area well ventilated.

Before connecting or disconnecting charger leads, be sure charger is turned OFF.

Keep electrolyte up to proper level to reduce volume of gas.

LOAD TESTING BATTERIES

Be sure load clamps are securely connected to clean terminals.

Do not connect or disconnect load leads unless LOAD CONTROL is turned OFF.

Be very careful when load testing batteries immediately after charging. Be sure area is well ventilated and no gas is present around battery.